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ABSTRACT

A two-phase curriculum project was undertaken in Illinois to develop, test, and implement a two-year competency-based model for the education of secondary school building construction teachers in the area of residential structures. During the first contract period, skill and knowledge competencies were identified and validated for thirteen units of instruction, covering the topics of pre-construction planning, structural layout, concrete and its various uses, carpentry, plumbing, heating and cooling, electricity, painting and finishing, mechanical trades, and landscape design. Implementation of this curriculum option within the technology education major was planned to occur during the 1977-78 school year at Eastern Illinois University, and a proposal to accomplish this objective was presented to and approved by several university committees. Approval by the Board of Governors is expected in the near future. The final proposal, developed in the second phase, included two additional subject areas: construction materials and the organization and teaching of a construction trades program. Besides giving the rationale for the program and supporting data, the proposal outlined objectives, costs, courses and their requirements for implementation, and a liaison program with community colleges for transfer credit. As part of the project, a curriculum guide (see CE 018 238) was developed as well as an extensive bibliography of resource materials and organization. (ELG)

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ED164805

FINAL REPORT
PHASE
II
COMPETENCY-BASED PRESERVICE
CONSTRUCTION TRADES CURRICULUM

by

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Developed as a cooperative project with the
Research Development Unit
Board of Vocational Education and Rehabilitation
Department of Adult, Vocational and Technical Education
Illinois Office of Education
Springfield, Illinois

Contract #RDE-B8-533

June, 1978

CE 018 339

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NATIONAL INSTITUTE OF EDUCATION

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ACKNOWLEDGEMENTS

Rarely can one look to a single individual and indicate outstanding success with any specific program. Usually it is a group of individuals working toward common goals. The initiation and development of this Competency-Based Preservice Construction Trades Curriculum is such a group effort.

Appreciation is expressed to the many individuals who gave their time and knowledge in the preparation of this curriculum.

— Illinois Department of Adult, Vocational and Technical Education Staff —

James R. Galloway, Assistant Superintendent, Department of Adult, Vocational and Technical Education

William E. Reynolds, Coordinator, Professional and Curriculum Development Unit (currently manager of Planning and Reports Unit)

James B. Haire, Professional and Curriculum Development Unit (currently in Research and Development Unit)

Robert O. Metzger, Head, Occupational Consultant

Ronald D. McCage, Manager, Research and Development Unit

Nancy Harris, Research and Development Unit

— Eastern Illinois University Faculty/Staff —

Peter R. Moody, Ph.D, Provost and Vice President for Academic Affairs

Donald P. Lauda, Ph.D, Dean, School of Technology

Charles L. Joley, Ed.D, Director of Occupational Education

Charles W. Watson, MS, Industrial Technology

— Special Acknowledgments —

The writer wishes to express his gratitude to his dissertation committee for approving and assisting with a study in construction. The questionnaire, data and findings of the study were instrumental in obtaining a two year grant from the Illinois Division of Adult, Vocational and Technical Education for the purposes of developing this curriculum and setting up implementation plans.

Recognition is extended to the following University of Northern Colorado faculty:

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Dr. David Olson, Advisory Professor, Department of Industrial Arts

Dr. Kenneth E. Hogan, Advisory Professor, College of Education

Dr. Harald P. Christensen, Faculty Representative, Department of Political Science.

Special recognition is also extended to Charles W. Watson, an industrial technology faculty member at Eastern Illinois University, for his expertise in developing an extensive bibliography for the convenience and professional development of educators and artisians who utilize this curriculum guide in the future.

— Special Committees —

Two committees served this project. The time given to this project was generally stolen from an extremely busy and involved schedule. These individuals represent various construction trade, management and labor organizations. Their input into this curriculum project was much needed to reflect current conditions. We are grateful to members of the steering and advisory committees.

— Steering Committee Members —

Peter Billing, National Forest Products Association

Jerry Campbell, Home Builders Association of Illinois

Donald K. Dunn, U.S. Department of Labor Bureau of Apprenticeship and Training

Leon Elliott, Portland Cement Association of America

Robert Harrison, Mason Contractors Association of America

Jack D. Hugnes, U.S. Department of Labor Bureau of Apprenticeship and Training

William Kuhne, American Institute of Constructors

Dorsey Moss, Department of Construction, Purdue University

Terry Paul, Home Builders Association of Illinois

James Schneider, Painting and Decorating Contractors of America

— Advisory Committee Members —

William Dempsey, Training Director, United Association of Plumbers and Pipe Fitters Local Union No.65, Forsyth, Illinois

Dan Llewellyn, Business Representative, Bricklayers Local No.17, Champaign, Illinois

Verlan McWilliams, Business Representative, Carpenters Local No.347, Mattoon, Illinois

Ralph E. Patzke, Executive Secretary, Joint Apprenticeship Committee of the Sheet Metal Industry, Champaign, Illinois

William Rollins, Coordinator of Apprenticeship and Training, Champaign County Carpenters Board of Apprenticeship and Training, Champaign, Illinois

Don Sanders, Superintendent, Farrier Construction Company, Charleston, Illinois

Robert E. Skipton, Director, Painting and Decorating Contractors Association, Inc., Springfield, Illinois

John Taylor, Business Representative, Electrical Workers Local Union No.146, Decatur, Illinois

— Support Staff —

We are grateful to the following individuals for their secretarial assistance in the development of this curriculum guide.

Bonnie Kimball	Virginia Butler
Janet Fraembs	Jackie R. Davis
Judy Sherman	Joyce Maurer

Chapter I

INTRODUCTION

The responsibility for the improvement of instruction in secondary school building construction programs in Illinois rests with the State of Illinois Division of Adult, Vocational and Technical Education.

Consequently, personnel representing the Research and Development Unit of the Department of Adult, Vocational and Technical Education, Illinois Office of Education, have entered into a funding agreement with Eastern Illinois University to develop a Competency-Based Preservice Construction Trades Curriculum.

This report contains information relative to the purposes, needs, methods, procedures, progress and completion of the project from July 1, 1977 to January 15, 1978 and from May 15 to June 30, 1978.

Purpose of the Construction Trades Curriculum

The primary purpose of this curriculum project was to identify those skill and knowledge competencies needed by secondary school building construction teachers. The skill and knowledge competencies identified will serve as a floor for the selection and development of content and instructional strategies for a construction trades teacher education program.

Need for a Construction Trades Curriculum

Recent emphasis upon the expansion of the more practical education concepts has placed strain upon the existing meager supply of vocational teachers in general.

In the year 1961, the number of building construciton programs at the secondary school level in Illinois was twenty-one.[1] This number increased to 109 by November 15, 1975.[2]

Because of a critical teacher shortage, in 1969 the Illinois Board of Vocational Education and Rehabilitation liberalized certification requirements for occupational education teachers.

After 1969, a shift occurred from the State Department in Illinois to the local school administrator for making decisions concerning teacher qualifications in occupational education areas. These changes in certification procedures apparently eased the teacher shortage; however, a large number of school administrators continue to prefer to employ the bachelor's degree graduate who can also meet occupational experience qualifications. It is this need for competent construction trades teachers to which this curriculum project is dedicated.

Higher education institutions in Illinois have not contributed to the development of teacher preparation in the construction trades. Not one program in teacher education exists in this state specifically designed to prepare competent building construction teachers. A recent search of the literature supports the assumption that no teacher education programs of this type are operating in the United States. The obvious need has gone unfulfilled for years.

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[1]State of Illinois, Board of Vocational Education, "Report of the Workshop Conference for Building Trades Instructors," August 23-24-25, 1961.

[2]State of Illinois, Board of Vocational Education and Rehabilitation, Vocational and Technical Education Division, Computer Print-Out, Novermber 15,1975.

Objectives

The overall objectives of this project was to develop, test, and implement a two-year competency-based model for development of preservice construction trades teachers.

Specific measureable objectives are:

1. To identify required competencies for preservice construction trades teachers.
2. To evaluate the reliability and validity of the identified competencies.
3. To develop a two-year competency-based preservice program incorporating the identified competencies.
4. To incorporate the construction trades program into the ongoing teacher education program at Eastern Illinois University.
5. To establish a liasion with the community college system for integration of the proposed model.
6. To incorporate the proposed model into the existing physical facilities in the School of Industrial Arts and Technology.
7. To establish a system for announcing the availability of the new program in the fall of 1977.
8. To implement the construction trades program in the fall of 1977.[1]

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[1]Eastern Illinois University, "Competency-Based Preservice Construction Trades Curriculum Proposal," May 3, 1976.

Schedule of Events

A schedule of events accompanied the proposal dated June, 1977. The time schedule for phase II of this curriculum project was:

1. July 1 - September 30, 1977
   a. Write established competencies in performance terms for development of curriculum guide.
   b. Prepare construction trades teacher education curriculum proposal and present to School of Technology faculty.
2. October 1 - January 15, 1978
   a. Present construction trades teacher education implementation proposal to Council on Teacher Education
   b. Seek approval of Council on Academic Affairs
      NOTE: Because of university time schedules, the presentation of programs for approval may extend well into the spring semester.
   c. Begin preparation for on-site construction courses when approval occurs.
   d. Place curriculum guide materials in format for reproduction.
3. January 15 - May 15, 1978
   a. Develop an annotated bibliography for the curriculum guide.
   b. Assemble rough draft of curriculum guide for critique.
   c. Correct/revise rough draft and duplicate final copy.
   d. Project director on leave spring semester, 1978. Will monitor program and visit construction programs in the U.S. for information and personal growth.

4. May 15 - June 30, 1978

   a. Continue to present the new program to educators in the community colleges, area vocational centers and high schools.

   b. Begin the on-site construction sequence during the summer/fall session, 1978 with a completion date of May 15, 1979.

   c. Write a final report of the curriculum project.

   d. Data Collection

      1. General competencies for the construction trades will be written in performance terms.

      2. Instructional strategies will be designed on the basis of recent research when applicable.

Objectives completed during the contract period were:

1. To write indentified construction trades competencies in performance terms. (Written in non-performance terms in contract POB-A7-032.)

2. To establish a liaison with the community colleges for integration of the proposed model. (Not completed in POB-A7-032)

3. To establish courses, provide physical facilities, faculty, and a teaching medium for preparation of certifiable construction trades teachers by the Fall of 1978.

4. To prepare and submit construction trades curriculum implementation proposals to all university governing groups for approval or suggestions for revisions that will be conducive to acceptance.

5. To disseminate the results of the construction trades curriculum project via presentation at state and national professional meetings and articles for publication in professional journals.

6. To incorporate energy conservation methods/materials in residential design and construction.

7. To deliver within 30 days of the completion date of the contract, a completed competency based preservice construction trades curriculum guide to the East Central Curriculum Management Center.

Chapter II

METHODS AND PROCEDURES

INTRODUCTION

Four major activities have occurred during the second contract period (phase II) of this curriculum project. The activities include: (1)screening and writing previously established construction and skill competencies in performance terms; (2)the preparation of a proposal designed for the purpose of implementing a construction trades concentration option within the Technology Education major at Eastern Illinois University; (3)the development of an extensive bibliography that includes resources directly related to seven construction trades/occupations and (4)the presentation of the proposed teacher preparation construction trades program to educators in Illinois community colleges, area vocational centers and other secondary schools.

Steering Committee

Steering committee members were solicited from building associations, construction contractors, and labor organizations initially at the national level. Recommendations from individuals at the national level resulted in names of key individuals who served as steering committee members for the construction trades curriculum.

National trade business and commercial organization personnel initially contacted were:

American Building Contractors Association

American Federation of Labor and Congress of Industrial Organizations

American Institute of Constructors

American Society of Concrete Construction

American Subcontractors Association

Associated Builders and Contractors

Associated General Contractors of America

Associated Independent Electrical Contractors of America

Bricklayers, Masons, and Plasterers' International Union of America

Illinois Bureau of Apprenticeship and Training

International Brotherhood of Painters and Allied Trades

International Masonry Institute

Laborers' International Union of North America

Mason Contractors Association of America

Mechanical Contractors Association of America

National Association of Home Builders

National Association of Plumbing-Heating-Cooling Contractors

National Electrical Contractors Association

National Roofing Contractors Association

Operative Plasterers and Cement Masons International Association of the United States and Canada

Painting and Decorating Contractors of America

Portland Cement Association

United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada

United Brotherhood of Carpenters and Joiners of America

Contacts with executive directors of these construction related associations and labor organizations resulted in ten highly qualified steering committee members. The steering committee make-up follows:

CONSTRUCTION TRADES CURRICULUM
STEERING COMMITTEE

Peter Billing
Glen Hill Office Park
799 Roosevelt Road
Glen Ellyn, IL 60137
National Forest Products Association

Jerry L. Campbell (1976-77)
Home Builders Association of Illinois
100 West Cook Street
Springfield, IL 62704
National Association of Home Builders of U.S.

Donald K. Dunn (1977-78)
Bureau of Apprenticeship and Training
606 East Monroe Street
Springfield, IL 62701

Leon Elliott
OPTCMIA Training Programs
Old Orchard Road
Skokie, IL 60076
Portland Cement Association of America

Robert Harrison
117 Audrey Lane
Mt. Prospect, IL 60056
Mason Contractors Association of America

Jack D. Hughes (1976-77)
Bureau of Apprenticeship and Training
600 East Monroe Street
Springfield, IL 62701

William Kuhne
American Institute of Constructors
Kuhne Construction Company
Champaign, IL 61820

Dorsey Moss
Department of Construction
Purdue University
W. Lafayette, IN 47901

Terry Paul (1977-78)
Home Builders Association
of Illinois
100 West Cook Street
Springfield, IL 62701

James Schneider
1637 S. State Street
Lockport, IL 60441
Painting and Decorating
Contractors of America

Skill and Knowledge Competencies

Thirteen units of instruction were developed during the first contract period that included the construction trades usually utilized in the planning and building of a residential structure. Skill and knowledge competencies were written in questionnaire form for each unit and presented to journeyman craftsmen of each construction trade for validation.

The format used in organizing the trade competencies was arranged to coincide with the logical steps followed by builders of residential structures.

Skill and knowledge competencies were written in non-performance terms prior to submission to trades craftsmen. Competencies were written in performance terms during the second contract period.

It should be clearly understood that the skill and knowledge competencies for any one construction trade is an abbreviated list of MINIMUM COMPETENCIES to be achieved by the prospective building construction teacher. In no way should it be misconstrued to represent the full range of competencies expected of the journeyman craftsman.

Units of instruction planned for inclusion in the construction trades teacher education program and their sub units are:

Unit 1.0.0 PRE-CONSTRUCTION PLANNING

1.1.0 Energy Conservation - Residential Construction Planning Stage

1.2.0 Energy Saving Features - Existing Residential Structures

1.3.0 Planning the Structure

1.4.0 Selecting and Purchasing a Site

1.5.0 Planning the Living Space

1.6.0 Preparing Working Drawings

1.7.0 Writing Specifications

1.8.0 Financing and Contracting

Unit 2.0.0 LAYING OUT THE STRUCTURE

2.1.0 Clearing the Site

2.2.0 Installing Temporary Utility Services

2.3.0 Initiate Topographic Alterations

2.4.0 Design Surface and Ground Water Control System

2.5.0 Layout the Structure

Unit 3.0.0 BUILDING FOUNDATION MASONRY/CONCRETE WALLS

3.1.0 Crawl Space Construction - Concrete Block

3.2.0 Basement Construction - Concrete Foundation Wall

Unit 4.0.0 FORMING, PLACING, AND FINISHING CONCRETE - HORIZONTAL

4.1.0 Subgrade Preparation

4.2.0 Formwork

4.3.0 Concrete Requirements

4.4.0 Placing Concrete

4.5.0 Finishing Concrete

4.6.0 Curing Concrete

Unit 5.0.0 CARPENTRY - FRAMING THE STRUCTURE

5.1.0 Sill and Floor Framing

5.2.0 Wall and Partition Framing

5.3.0 Roof Framing

Unit 6.0.0 CARPENTRY - ENCLOSING THE STRUCTURE

6.1.0 Roofing Materials and Application

6.2.0 Exterior Finish Trim and Wall Coverings

Unit 7.0.0 PLUMBING ROUGH-IN

7.1.0 Waste Disposal System

7.2.0 Fresh Water Distribution System

Unit 8.0.0 HEATING AND COOLING ROUGH-IN

8.1.0 Heating and Cooling Installation

Unit 9.0.0 ELECTRICAL ROUGH-IN

9.1.0 Wiring the Interior

9.2.0 Wiring the Exterior

Unit 10.0.0 CARPENTRY - INTERIOR FINISH

10.1.0 Thermal Insulation

10.2.0 Interior Wall and Ceiling Finish

10.3.0 Interior Trim

10.4.0 Floor Coverings

Unit 11.0.0 PAINTING AND FINISHING

11.1.0 Interior Painting and Finishing

11.2.0 Exterior Painting and Finishing

Unit 12.0.0 MECHANICAL TRADES - COMPLETION

12.1.0 Plumbing - Completion

12.2.0 Heating and Cooling - Completion

12.3.0 Electrical Power - Completion

Unit 13.0.0 LANDSCAPE DESIGN

Advisory Committee

An advisory committee of eight members was developed primarily to assist with the identification and validation of competencies. Other services expected of advisory team members include:

(1) to offer expertise throughout the project

(2) to assist with the evaluation of the completed curriculum.

(3) to critique the curriculum as improvements/changes occur.

Current members of the construction trades teacher education advisory committee are:

William H. Dempsey, Director
Plumbers and Pipefitters Joint Apprenticeship Training Committee
Forsyth, Illinois 62535

Dan Llewellyn, Business Representative
Bricklayers Local #17
212 S. First Street
Champaign, IL 61820

Verlan McWilliams, Business Representative/Recording Secretary
Carpenters Local 347
North Route 45
Mattoon, Illinois 61938

Ralph Patzke, Executive Secretary
Joint Apprenticeship Committee
Sheet Metal Industry
Champaign-Urbana Area
P.O. Box 3445-CF
Champaign, Illinois 61820

William J. Rollins, Coordinator of Apprenticeship and Training
Champaign County Carpenters Board of Apprenticeship and Training
404 South Duncan Road
Champaign, Illinois 61820

Don Sanders, Superintendent
Farrier Construction Company
Box 373
Charleston, IL 61920

Robert E. Skipton, Director
Painting and Decorating Contractors Association, Inc.
2000 Noble Avenue
Springfield, IL 62704

John Taylor, Business Representative
Electrical Workers Local Union No. 146
2955 N. Woodford Street
Decatur, IL 62526

Implementation Proposals

Implementation of the construction trades curriculum was planned to occur during the 1977-78 school year. In anticipation of implementation several ideas were examined to facilitate a program or program option. Three avenues surfaced concerning implementation plans during the first contract period.

1. Plan and construct a residential structure in the community as a teaching/learning medium to enrich supporting course requirements.

2. Place the learner with a residential construction contractor on a cooperative basis to develop the practical aspects of construction skills and knowledge.
3. Arrange for the student to experience an internship with successful construction trades teachers in selected secondary schools followed immediately by the student teaching experience.

A rough draft of the proposal was developed to be considered by various university committees at Eastern Illinois University at the close of the first contract period.

This suggested construction trades option consisted of a blending of selected courses currently being offered to Industrial Technology and Technology Education (teacher preparation) majors. Three were suggested to be on site construction experiences and a fourth was suggested to assist with a concentrated study of building construction materials and methods of organizing and teaching a vocational building construction program at the secondary school level.

This preliminary draft appeared as follows:

BACHELOR OF SCIENCE IN TECHNOLOGY EDUCATION
TEACHER CERTIFICATION
CONSTRUCTION TRADES OPTION

Course		Semester Hours
General Education Requirements		41
Technology Education Core Requirements		15
Professional Requirements		23
Construction Trades Requirements		37
TED 2223	Basic Fabrication of Woods	3
TED 3013	Architectural Planning and Analysis	3
TED 3023	Architectural Drafting and Design	3
TED 4223	Construction Framing Principles	3
INT 4222	Principles of Cost Estimating	2
INT 3202	Surveying	2
INT 4243	Construction Practices	3
OSCP Summer	(On Site Construction Practice) (12 Hours Instruction per Week)	6
OSCP Fall	(Tuesday-Thursday - 3 hrs. a.m. 3 hrs. a.m.)	6
OSCP Spring		6
Electives		4
	TOTAL	120

ONE YEAR TIME LINE

Summer Semester Units	Fall Semester Units	Spring Semester Units
Planning the Structure	Carpentry - Framing the Structure	Carpentry - Interior Finish & Trimming
Laying out the Structure	Carpentry - Enclosing the Structure	Painting & Decorating
Building Foundation Masonry/Walls	Plumbing Rough-In	Mechanical Trades - Completion
Forming, Planning & Finishing Concrete - Horizontal	Heating, Cooling R-I	Landscape Design
	Electrical Rough-In	Open House

UNIVERSITY APPROVED IMPLEMENTATION PROPOSAL

During the second phase of this project a proposal designed for the purpose of implementing a construction trades option within the Technology Education major at Eastern Illinois University was completed.

This proposal was developed by the writer in adherence to guide lines requested by the Dean, School of Education, Eastern Illinois University and the Teacher Certification Board, Illinois Office of Education, State of Illinois.

The proposal, which follows, has been presented and approved by the following university committees:

School of Technology Faculty

Council on Teacher Education

Council on Academic Affairs

Council on Graduate Studies (approval of 4993, Teaching Construction Trades)

A second request form prepared for presentation to the Illinois Board of Governors of State Colleges and Universities was developed and delivered to Dr. Pringle, a member of the Board of Governors, for presentation to that body. Approval by the Board of Governors is expected in the very near future, however financial support to implement the construction trades teacher education program at Eastern Illinois University is not expected to accompany the approval. Perhaps financial support will become a reality in the near future.

The construction trades concentration option follows as presented by the Technology Education faculty and three university councils. Three new courses are included in this proposal.

EASTERN ILLINOIS UNIVERSITY

Charleston, Illinois

TO: COTE, CAA

FROM: School of Technology Faculty

THROUGH: Dean, School of Technology

DATE: January 31, 1978

PROPOSAL

SUBJECT: CONSTRUCTION TRADES CONCENTRATION OPTION WITHIN THE TECHNOLOGY EDUCATION MAJOR

AGENDA ITEM:

DATE OF PROPOSAL:

DATE RECEIVED:

DATE(S) CONSIDERED:

ACTION:

RECORD OF ACTION:

Howard F. Nelms
Program Director

Don Lauda, Dean
School of Technology

TO: COTE

FROM: Howard F. Nelms

THROUGH: Dean, School of Technology

DATE: January 26, 1978

SUBJECT: Catalog Description of Technology Education Curriculum including a Concentration Option in Construction Trades

TECHNOLOGY EDUCATION (B.S. FOR TEACHER CERTIFICATION)

Major: (Standard High School Certificate. No minor required.)

Arts and Sciences 2100	2 sem. hrs.
Mathematics 1310, 2320	3
Technology Education 1413, 2064, 2114, 2324, 3073, 3400.	21
Physics and/or Chemistry electives	7
Two concentrations in either electronics, graphics, graphic arts, metals, power, woods with no less than 6 semester hours in each	12
TOTAL	45 sem. hrs.

OR

CONSTRUCTION TRADES CONCENTRATION:

Arts and Sciences 2100	2 sem. hrs.
Mathematics 1310, 2320	3
Physics and/or Chemistry electives	7
Industrial Technology 3202, 4222, 4243	7
Technology Education 1413, 2064, 2114, 2324, 3013, 3023, 3400, 3979,3989, 4993	45
TOTAL	64 sem. hrs.

(Major GPA based on industrial arts courses only.)

Minor: (for teacher certification)

Technology Education 1413, 2064,2114, 2324, 3400	18 sem. hrs.
Technology Education or Industrial Technology electives*	6
TOTAL	24 sem. hrs.

*State certification requires a minimum of 24 semester hours for teaching in the general laboratory. To teach in a unit laboratory the certification requirement is 8 semester hours in that specified field.

*Students opting the Construction Trades concentration are not required to take the TED 3073 core requirement.

I. TYPE OF PROGRAM REQUEST - AMENDED

A. Amended
B. Undergraduate
C. Approved programs in industrial education

II. NAME AND TITLE OF CHIEF EDUCATIONAL ADMINISTRATOR

A. Administrator responsible for execution Dean, School of Technology
B. Program Developer Dr. Howard F. Nelms

III. SCOPE OF ENROLLMENTS

A. Majors 1976 - 1977

	Non-teacher Certification	With Teacher certification	Full time	Part time
Undergraduate	71 (Industrial Technology)	115 (Technology Education)	186	5
Graduate	0	11	5	6

B. Total anticipated certificated graduates from requested program.

Undergraduate

	1978-79	1979-80	1980-81	1981-82	1982-83
Undergraduate*	0	6	6	6	6
Graduate	0	0	0	0	0

* Anticipated number of graduates from this proposed concentration must be based upon several factors.
1. First, 5 or 6 certificated teachers of building construction available for employment in Illinois secondary schools probably will satisfy the immediate needs of the approximately 109 secondary school building construction programs presently operating.
2. A survey of seven Illinois universities with placement services revealed a total of 75 calls for secondary school building construction teachers in Illinois for the 1977-78 school year. Assuming some duplication of calls, it remains an indication of an immediate need.
3. It is anticipated that a number of students will take advantage of one or more of the courses in the construction option to strengthen concentration in related areas of industrial education.

IV. ACADEMIC PREPARATION OF CANDIDATES

52 Semester hours required for the proposed major for prospective teachers.

20 Semester hours professional education required for certification.

3 Number of professional education courses required to meet specific departmental goals.

50 Number of courses offered by the department during current academic year.

V. DEPARTMENTAL FACULTY

FULL TIME	PART TIME	
0	0	Number of professors whose degree is the baccalaureate.
2	0	Number of professors whose highest degree is the master's.
10	0	Number of professors holding a doctor's degree.
0	0	Number of professors teaching only departmental professional education courses.
0	1	Number of professors devoting part time to departmental subject area courses and part time to departmental professional education courses.
7	0	Number of professors who have had public school teaching experience.

VI. LIBRARY FACILITIES

1895 A. Number of catalogued volumes related to the proposed concentration.

335 B. Number of catalogued volumes related to professional education aspects of the concentration.

1. 31 Journal in Industrial Education
2. 304 Journals in Education

2000 C. Number of state and federal documents available, related to the proposed concentration and associated professional education components.

$3,273.25 D. Expenditures by the library in the area of the proposed concentration during the preceding year.

VII. RATIONALE FOR THE PROGRAM (Concentration)

A. Need for the Program

The responsibility for the improvement of instruction in secondary school building construction programs in Illinois rests with the State of Illinois Division of Adult, Vocational and Technical Education. Sherwood Dees, former Director of the Illinois Division of Adult, Vocational and Technical Education, emphasized the need for improving the quality of occupational education in Illinois when he stated:

> Everyone seems to be in favor of improving the quality of occupational education in the schools and community colleges of Illinois. However, the question of just how to improve this quality of instruction seems to involve considerable debate. We are convinced that considerable attention should be directed toward occupational education teachers, supervisors and directors as a means of improving instruction for each person receiving such training.
>
> The universities, with responsibility for teacher education, must meet the needs of teachers of occupational education at a time when training for the world of work is the highest priority of all of education. As many of the occupational education areas of instruction are new and different, it means re-organization of traditional teacher education programs that often were based upon occupations of the past or traditional curriculum offerings that were not aimed at the objective of entry for the world of work.[1]

Personnel of the Industrial Oriented Occupations Unit of the Illinois Division of Adult, Vocational and Technical Education have the responsibility for improving secondary school instruction in sixty-two industrial related occupations or sub-occupations. Building trades instruction at the secondary school level in Illinois is categorized as construction trades. The needs of secondary school building construction teachers have implications for the design and

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[1]Sherwood Dees, "Personnel Development in Occupational Education in Illinois," Illinois Career Education Journal, Spring 1974, p.2.

implementation of pre-service and in-service programs to build teacher competency and therefore, to improve instruction. William Reynolds states:

> In-service education, always high on the educational priority ladder, should provide specialized instruction in areas where there are specific identified needs due to technological advances of our society--not to re-tread recent graduates who were inadequately prepared. Because this has too often been the case in the past, it was painfully apparent the Professional and Curriculum Development Unit must provide for necessary changes at the pre-service or undergraduate levels.[2]

This curriculum proposal is designed to help supply the demand for fully qualified vocational building construction teachers in Illinois secondary schools and ultimately to provide opportunities for the in-service construction teachers to update their knowledge and skill competencies.

B. Supporting Data

On May 3rd, 1976, representatives of Eastern Illinois University entered into a funding agreement with members of the Department of Adult, Vocational and Technical Education, Illinois Office of Education to develop a model teacher education curriculum in building construction. This curriculum effort became the responsibility of the School of Technology via the "request for proposal" route. The School of Technology and the Office of Occupational Education have teamed efforts to accept this challenge.

Key department of Adult, Vocational and Technical Education Officials have been very interested in supporting this curriculum effort for several years. The primary objective is to fulfill the demand for competent building construction teachers who in turn are supplying the citizens of Illinois with individuals who have the option to

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[2]William E. Reynolds, "Systems are Nice: Strategies Are Better," Illinois Career Education Journal, Spring 1974, p.4.

enter any one of several construction trades because of their ability to demonstrate entry level knowledge and skills.

Recent emphasis upon the expansion of the more practical education concept has placed strain upon the existing meager supply of vocational teachers. Applegate states that:

> There exists a need for improving efforts of developing teachers in vocational education. This need has both quantitative and qualitative dimension, and is applicable to new personnel as well as those currently practicing. Demands for new instructional personnel in vocational programs have been steadily increasing. In Illinois, the number of instructional personnel in community college vocational programs has quadrupled since 1969 and shows promise of continuing upward. In a similar period, the number of secondary school vocational teachers have doubled. These existing quantitative concerns are further multiplied by the increasing demand for vocational teachers in proprietary schools, by state efforts which encourage vocational education and by federal support to expand the Comprehensive Employment and Training Act Programs.[3]

In the year 1961, the number of building construction programs at the secondary school level in Illinois was twenty-one.[4] This number increased to 109 by November 15th, 1975.[5] Because of a critical teacher shortage, in 1969 the Illinois Board of Vocational Education and Rehabilitation liberalized certification requirements for occupational education teachers.

The rapid growth of area vocational schools and the emphasis on occupational and career education forced school administrators to frequently employ non-degree teachers. Many of these individuals came from trades and industries to accept teaching positions in

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[3]William Applegate, The Career Educator (Charleston, Illinois: Eastern Illinois University, 1975), p. 175.

[4]State of Illinois, Board of Vocational Education, "Report of the Workshop Conference for Building Trades Instructors," August 23-24-25, 1961.

[5]State of Illinois, Board of Vocational Education and Rehabilitation, Vocational and Technical Education Division, Computer Print-out, November 15, 1975.

industrial oriented occupations taught at the secondary level. After 1969, a shift occurred from the State Department in Illinois to the local school administrator for making decisions concerning teacher qualifications in occupational education areas. These changes in certification procedures apparently eased the teacher shortage; however, a large number of school administrators prefer to employ the bachlelor's degree graduate who can also meet occupational experience qualifications.

A survey was conducted between September 7 and September 19th, 1977, to ascertain the number of calls for secondary school building construction teachers to fill vacated or newly created teaching positions for the 1977-78 academic year in Illinois.

REQUESTS FOR VOCATIONAL BUILDING CONSTRUCTION TEACHERS IN ILLINOIS
(1977-78 School Year)

Institution	Placement Director	Requests
Eastern Illinois University	Mr. Robert E. Jones	10
Illinois State University	Mr. Parker Lawlis	3
Western Illinois University	Mr. Batt Maher	(not separated from 116 in Ind. Arts)
Northern Illinois University	Mr. George Kubat	19
Southern Illinois University		18-20
University of Illinois		20
Chicago State University		4
		Total 75

It should be stressed that employers frequently place teaching vacancies in more than one university.

In a study by Nelms conducted to identify the educational needs of secondary school building construction teachers as a basis for the improvement of subject matter teaching competencies it was concluded that:

> A need exists to provide opportunities for prospective Illinois secondary school building construction teachers to acquire building construction knowledge and skills in a formal pre-service teacher education program because findings in this study indicated that secondary school building construction teachers acquire their knowledge and skills primarily through work experiences outside a formal education program.[6]

VIII. PROGRAM OBJECTIVES

A. Specific Professional Education Objectives

The university's broad objectives for teacher education involving all segments of the university are to:

1. Recruit and admit high caliber students to programs which prepare teachers.
2. Administer programs with appropriate emphasis upon disciplinary content, a broad cultural background, and professional study.

The university's specific objectives for teacher education charged primarily to the School of Education are to certify prospective teachers who demonstrate:

1. Effective communication skills.
2. Effective mastery of subject matter.
3. An understanding of our physical and social environment.

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[6]Howard Franklin Nelms, "The Educational Needs of Secondary School Building Construction Teachers in Illinois with Implications for Program Development in Teacher Education Institutions" (Ed. D. dissertation, University of Northern Colorado, 1976).

4. Aesthetic sensitivity.

5. Competencies in evaluating and adapting to innovation and change.

6. The ability to promote desireable physical and mental health practices.

7. A democratic system of values and the ability to foster democratic behavior to others.

8. Knowledge of theories and principles of learning.

9. Understanding of human growth and development and to provide effectively for individual differences, needs and interests.

10. Teaching skills and effective procedures for motivating, directing and evaluating learning.

B. Specific Proposed Concentration Objectives (building construction)

The purpose of the proposed Compentency-Based Pre-service Construction Trade Curriculum is to meet the suggested minimum requirements for a teacher of residential building construction at the secondary school level. The minimum requirements as suggested by bulletin number 4-673 entitled "Criteria for Program Approval and Financial Support for the Administration of Occupational Education in Illinois" are:

1. Professional Competency
   Preparation shall include instructional organization, preparation of instructional materials, methods, and techniques of instruction in specialty areas.

2. Professional Certification
   An appropriate valid teaching certificate, (K-12).

3. Employment Experiences
   One year (2000 hours) employment experience in the specific occupational area to be taught.

4. Compliance with Legal, Governmental and Professional Requirements for those occupations in which employment or preparation is regulated by law or licensure, such laws and licensing requirements shall take precedence over other items except 1, 2 and 5.

5. In-Service Education
   Instructors should participate in relevant workshops and seminars or other activities that will reinforce their professional competencies.

IX. CURRICULUM DISPLAY

A. General Education Requirements

Candidates opting for a concentration in building construction must meet the general education requirements specified on page 75 of the 1977-78 Eastern Illinois University general catalogue. Candidates for teacher certification must have a total of three (3) semester hours of health education and/or physical education.

B. Professional Education Requirements

Students who desire to concentrate in building construction are expected to meet the professional education requirements of the discipline in which they major as indicated on page 70 of the 1977-78 Eastern Illinois University general catalogue.

C. Departmental Requirements for the Concentration in Building Construction

The undergraduate major in technology education with a concentration in building construction requires fifteen (15) semester hours of study in technology education core requirements. Candidates selecting the building construction teaching option are required to take specific courses of study in technology education and industrial technology that support the knowledge and skills the prospective candidate is expected to master. The technology education courses are:

TED 3013 Architectural Planning and Analysis
TED 3023 Architectural Drafting and Design
TED 3979 On site Construction Experience I (New Course)
TED 3989 On site Construction Experience II (New Course)
TED 4993 Teaching Construction Trades (New Course)

The Industrial Technology required courses are:

INT 4222 Principles of Cost Estimating
INT 3202 Surveying
INT 4243 Construction Practices

D. State Board of Vocational Education and Rehabilitation Division of Adult, Vocational and Technical Education requirements according to the provisions in Bulletin Number 4-673 entitled "Criteria for Program Approval and Financial Support for the Administration of Occupational Education in Illinois" lists minimum requirements for the teacher of vocational education in Illinois public schools. Two items significant to the development of this program are:

1. Professional certification requires an appropriate valid teaching certificate (K-12)
2. One year (2000 hours) employment experience in the specific occupational area to be taught.

CURRICULUM DISPLAY MODELS

PROJECT HOUSE

Course	Semester Hours
General Education Requirements	38
Technology Education Core Requirements (Exclude TED 3073)	15
Professional Education Requirements (Includes TED 3400)	23
School of Technology Course Requirements	34
Electives	10
	120

* 2000 hours work experience required

X. SUGGESTED 8-SEMESTER SEQUENCE FOR COMPLETION OF THE PROGRAM

Semester	Course
1	General Education Requirements
2	General Education Requirements
3	General Education/School of Technology Requirements
4	General Education/School of Technology Requirements
5	School of Technology/Professional Education
6	School of Technology/Professional Education
7	School of Technology/Professional Education
8	Student Teaching Requirement

XI. PROJECTED COST OF PROGRAM*

	1977-78	1978-79	1979-80	1980-81	1981-82
Commodities	28,800.	30,816.	32,973.	35,281.	37,750.
Contractual Services	5,000.	5,350.	5,724.	6,125.	6,554.
Travel	-0-	-0-	-0-	-0-	-0-
Equipment	3,000.	-0-	-0-	-0-	-0-
Telecommunication	145.	145.	145.	145.	145.
Student Help	2,150	2,150	2,150	2,150	2,150
Building Site	8,000.	8,560.	9,159.	9,800.	10,486.
Construction Site Office/ Tool Storage	5,000.	-0-	-0-	-0-	-0-
Total Expenditure Requests	52,095.	47,021.	50,151.	53,501.	57,085.
Income from Sale of Property	66,600.	71,262.	76,250.	81,588.	87,299.
Net Gain from Project	14,505	24,241	26,099	28,087	30,214

*1. Faculty salaries have not been included in the projected costs of the program. If an additional faculty member is needed to help carry the additional load, it is estimated the program would operate in the "black" because of income produced by student labor.

2. Expected financial gain from the program excluding instructor salary is expected to be approximately 33% over the investment (excluding the first year). This figure could fall as low as 25% because labor has been calculated at "craftsman level".

3. Costs for land and residential dwelling construction during the last five years (5) has increased approximately 7% each year. Projections for this proposed program have been calculated at the same yearly percentage increase.

4. Costs have been based upon a "typical" 1800 sq. foot single family residence with no basement. The estimates do not include so called "luxury items" sometimes requested by custom customers.

5. It is anticipated this program will be, at a minimum, self-supporting including the instructors salary; and at a maximum, provide a healthy financial gain to the University.

6. Estimated costs are based upon material costs of $16.00 per square foot and labor costs of $16.00 per square foot for the 1978-79 school year.

7. These calculations include the normal builders mark-up. Realistically the normal builder mark-up and loss incurred by student inexperience should balance.

REQUEST FOR NEW UNDERGRADUATE COURSE

I. Catalog Description

A. Course Number: TED 3979

B. Title: On Site Construction Experience I

C. Credit: Lecture, 0 hrs; Lab, 18 hrs; Credit, 9 sem hrs (0-18-9)

D. Term Offered: Fall

E. Short Title: On Site Const. I

F. Course Description: Study and practical application of the principles underlying the residential construction trades of masonry/concrete and frame carpentry.

G. Prerequisite(s) TED 3023 and INT 3202

II. Outline of the Course

A. Preconstruction Planning 2 weeks

1. Planning the structure
2. Selecting and purchasing a site
3. Planning the living space
4. Preparing working drawings
5. Writing specifications
6. Financing and contracting

B. Laying Out the Structure 2 weeks

1. Clearing the site
2. Installing temporary utility services
3. Initiation of topographic changes
4. Surface and ground water control systems
5. Surveying

C. Building Foundation Masonry/Concrete Walls 3 weeks

1. Crawl space construction - concrete block foundation wall
2. Basement construction - concrete wall

D. Forming, Placing, and Finishing Concrete - Horizontal 2 weeks

1. Subgrade preparation
2. Formwork
3. Concrete requirements
4. Placing concrete
5. Finishing concrete
6. Curing concrete

E. Carpentry - Framing the Structure 4 weeks

1. Sill and floor framing
2. Wall and partition framing
3. Roof framing

F. Carpentry - Enclosing the Structure 2 weeks

1. Roofing materials and application
2. Exterior finish trim and wall coverings

* Clinical experiences will be assigned on an individual basis during regular laboratory time.

III. Implementation

A. Faculty member(s) to whom the course is to be assigned initially:

Dr. Howard F. Nelms

B. Texts and supplementary material to be used:

Proposed text books:

Feirer, John L. and Hutchings, Gilbert R., Carpentry and Building Construction, Charles A. Bennett Co., 1972.

Spence, William P., Architecture: Design - Engineering - Drawing, Second Edition, McKnight Publishing Co., 1972.

Wagner, Willis H., Modern Carpentry, Third Edition, The Goodheart-Willcox Co., 1976.

C. Special projects or laboratory experiences to be involved and an estimate of cost requirements:

This proposed course is a part of a recommended program change intended to utilize the planning and construction of a residential structure as a teaching medium for the preparation of building construction teachers. The initial investment in materials and site represent a relatively large outlay of finance to initiate the course/program. However, educational programs of this type generate revenue in amounts exceeding the cost for two reasons. The land and materials are generally non-taxable and the labor cost is minimal because the learner is gaining skills, knowledge, and credit hours for their efforts in lieu of remuneration.

An estimated projected financial gain from the program is detailed on the following pages.

XI. PROJECTED COST OF PROGRAM*

	1977-78	1978-79	1979-80	1980-81	1981-82
Commodities	28,800.	30,816.	32,973.	35,281.	37,750.
Contractual Services	5,000.	5,350.	5,724.	6,125.	6,554.
Travel	-0-	-0-	-0-	-0-	-0-
Equipment	3,000.	-0-	-0-	-0-	-0-
Telecom-munication	145.	145.	145	145	145
Student Help	2,150	2,150	2,150	2,150	2,150
Building Site	8,000.	8,560.	9,159.	9,800.	10,486.
Construction Site Office/ Tool Storage	5,000.	-0-	-0-	-0-	-0-
Total Expenditure Requests	52,095.	47,021.	50,151.	53,501.	57,085.
Income from Sale of Property	66,600.	71,262.	76,250.	81,588.	87,299
Net Gain from Project	14,505	24,241	26,099	28,087	30,214

*1. Faculty salaries have not been included in the projected costs of the program. If an additional faculty member is needed to help carry the additional load, it is estimated the program would operate in the "black" because of income produced by student labor.

2. Expected financial gain from the program excluding instructor salary is expected to be approximately 33% over the investment (excluding the first year). This figure could fall as low as 25% because labor has been calculated at "craftsman level".

3. Costs for land and residential dwelling construction during the last five years (5) has increased approximately 7% each year. Projections for this proposed program have been calculated at the same yearly percentage increase.

4. Costs have been based upon a "typical" 1800 sq. foot single family residence with no basement. The estimates do not include so called "luxury items" sometimes requested by custom customers.

5. It is anticipated this program will be, at a minimum, self-supporting including the instructors salary; and at a maximum provide a healthy financial gain to the University.

6. Estimated costs are based upon material costs of $16.00 per square foot and labor costs of $16.00 per square foot for the 1977-78 school year.

7. These calculations include the normal builders mark-up. Realistically the normal builder mark-up and loss incurred by student inexperience should balance.

D. Proposed effective date: Fall semester 1978

IV. Rationale

A. Purpose and need:

1. Purpose:

The purpose of this course is to provide an avenue of opportunity for an individual to learn some of the necessary skills and knowledge competencies a successful building construction teacher must acquire.

2. Need for the course:*

At present, the School of Technology instructional program does not include courses in which residential building construction competencies may be acquired.

This course is one of three that is being proposed to assist in the building of an option for students who desire to meet the skill and knowledge requirements for building construction teachers. A severe shortage of construction teachers exists in Illinois.

A survey of seven universities in Illinois that maintain placement departments indicated a total of 75 calls for

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* For additional depth, the reader may refer to section VII of the "Construction Trades Concentration Option" proposal submitted with this course proposal.

building construction teachers during the 1976-77 year. In 1975 only 109 building construction programs existed in the state.

B. Similarity to existing courses:

There are no courses similar to this one offered to undergraduates in the 1977-78 general catalogue.

C. Required or elective:

This course is open to students who meet the prerequisites. Technology education majors who elect to pursue a concentration option in construction trades are required to complete the course.

V. Community Colleges

Transfer credit from similar courses offered from community colleges may be accepted if the content of the two courses can reasonably be judged as equal or near equal.

VI. Date Approved by Proposing Unit

The School of Technology faculty approved the concentration option in construction trades on October 13, 1977.

REQUEST FOR NEW UNDERGRADUATE COURSE

I. Catalog Description

A. Course Number: TED 3989

B. Title: On Site Construction Experience II

C. Credit: Lecture, 0 hrs; Lab, 18 hrs; Credit 9 sem hrs (0-18-9)

D. Term Offered: Spring

E. Short Title: On Site Const. II

F. Course Description: Study and practical application of the principles underlying the residential construction trades of plumbing, heating/cooling, electrical, finish carpentry, painting, and decorating, and landscape design.

G. Prerequisite(s): TED 3023, 3979, and INT 3202.

II. Outline of the Course

A. Plumbing Rough-In

1. Waste disposal systems — 2 weeks
2. Fresh water distribution

B. Heating and Cooling Rough-In — 2 weeks

Heating and cooling installation

C. Electrical Rough-In — 1 week

1. Wiring the interior
2. Wiring the exterior

D. Carpentry - Interior Finish — 4 weeks

1. Thermal insulation
2. Interior wall and ceiling finish
3. Interior trim
4. Floor coverings

E. Painting and Finishing — 3 weeks

1. Interior painting and finishing

2. Exterior painting and finishing

F. Mechanical Trades - Completion — 2 weeks

1. Plumbing - completion

2. Heating and Cooling - completion

3. Electrical power - completion

G. Landscape Design — 1 week

*Clinical experience will be assigned on an individual basis during the regular laboratory time.

III. Implementation

A. Faculty member(s) to whom the course is to be assigned initially:

Dr. Howard F. Nelms

B. Texts and supplementary material to be used:

Proposed text books:

Feirer, John L. and Hutchings, Gilbert R., Carpentry and Building Construction, Charles A. Bennett Co., 1976.

Spence, William P., Architecture: Design - Engineering - Drawing, Second Edition, McKnight Publishing Co., 1972.

Wagner, Willis H., Modern Carpentry, Third Edition, The Good heart-Willcox Co., Inc., 1976.

C. Special projects or laboratory experiences to be involved and an estimate of cost requirements:

This proposed course is designed to be offered in the Spring semester immediately following the TED 3979. The completion of this course in the Spring will result in a completed residential structure, ready for the real estate market.

D. Proposal Effective date: Spring semester 1979.

IV. Rationale

A. Purpose and need:

1. Purpose:

The purpose of this course is to continue to provide an opportunity for the learner to acquire the basic skill and knowledge competencies in the construction trades directly related to residential construction. A second semester of study and practical application of construction principles is necessary to develop a competent building construction teacher.

2. Need for the course.*

This course is the second of three that is being proposed to assist in the design of a concentration option that will result in supplying the demand for building construction teachers in Illinois and elsewhere.

B. Similarity to existing courses:

None with the exception of TED 3979, the previous course proposal presented.

C. Required or elective:

This course is open to students who meet the prerequisites. Technology education majors who elect to pursue a concentration option in construction trades are required to satisfactorily complete the course.

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* For additional depth, the reader may refer to section VII of the "Construction Trades Concentration Option" proposal submitted with this course proposal.

V. Community Colleges:

Transfer credit from similar courses offered from community colleges may be accepted if the content of the two courses can reasonably be judged as equal or near equal.

VI. Date Approved by Proposing Unit:

The School of Technology faculty approved the concentration option in construction trades on October 13, 1977.

(REQUEST FOR NEW UNDERGRADUATE COURSE)

I. Catalog Description:

A. Course Number: TED 4993

B. Title: Teaching Construction Trades

C. Credit: Lecture, 3 hrs; Lab, 0 hrs; Credit, 3 sem hrs.

D. Term Offered: Fall

E. Short Title: Tch. Const. Trds.

F. Course Description: Study of materials generally available for use in residential building construction trades and an investigation of teaching techniques unique to the initiation and development of vocational building construction trades programs for secondary schools and community colleges.

G. Prerequisite(s): Permission of instructor

III. Outline of the Course:

A. Construction Materials 10 weeks

1. Earth as a construction material
2. Concrete as a building material
3. Masonry materials
4. Wood framing materials
5. Sheathing materials
6. Roofing materials
7. Door and window units
8. Thermal insulation and vapor barriers
9. Sound insulation materials

10. Interior wall and ceiling materials
11. Finish floor materials
12. Built-in cabinets
13. Interior trim materials
14. Paint and finishing materials
15. Ventilation systems
16. Machanical trades materials
17. Landscaping

B. Organizing and Teaching the Construction Trades Program 5 weeks

1. The construction trades program
    a. Description
    b. Length of instruction
    c. Practical experience - skills
    d. Related instruction - knowledge
    e. Selection of students
    f. Health
    g. Objectives of the construction trades program
    h. Standards for the program
    i. Opportunities resulting from instruction
    j. Procedures for organizing a construction trades program
2. Implementing the construction trades program
    a. Theories of learning
    b. Instructors qualifications
    c. The role of public relations
3. Organizing and using vocational advisory councils
    a. Selection of advisory council members

b. Need for vocational advisory councils

c. Expectations of vocational industrial education

d. Function of the advisory council

e. Qualifications of advisory council members

f. Advisory council meeting procedures

g. Public relations function of local vocational advisory councils

4. Suggested instructional topics

a. School aims and objectives

b. Program objectives

c. Standards of attainment

d. Estimated time allotment for program

e. Lesson plan topics - first two days of class meetings

f. Organization of skill development experience

g. Safety

h. Control responsibilities of the instructor

i. Evaluation of student progress

j. Interdisciplinary possibilities

k. Financing and sale of the project structure

l. Equipment needs

m. Material and supply purchase procedures

n. Knowledge and skills to be developed

Note: See Competency-Based Preservice Construction Trades Curriculum developed by Dr. Howard F. Nelms, Eastern Illinois University, School of Technology in cooperation with the Illinois Department of Adult, Vocational and Technical Educaton, 1976-78.

III. Implementation

A. Name of staff member(s) to whom the course is to be assigned initially:

Dr. Howard F. Nelms

B. Texts and supplementary material to be used:

Proposed text books:

Schmidt, John L.; Lewis, Walter H.; and Olin, Harold B., Construction Principles, Materials and Methods, Interstate Printers and Publishers, Inc., Danville, Illinois, latest edition.

Spence, William P., Architecture: Design - Engineering - Drawing, Second Edition, McKnight Publishing Co., 1972.

C. Special projects or laboratory experiences to be involved and an estimate of cost requirements:

None

D. Proposed effective date: Fall semester 1978

IV. Rationale

A. Purpose and need:

1. Purpose

The purpose of this course is twofold. One aim is to develop in-depth knowledge of various building materials generally used in the residential construction trades. A second purpose is to introduce the prospective construction trades teacher to teaching methods unique to the construction trades and to provide an opportunity for the acquisition of knowledge related to the organization and implementation of successful construction trades programs in the secondary schools.

2. Need

The existing methods course content in the School of Technology is primarily aimed to assist the teacher in technology education (industrial arts) and does not offer content applicable to the highly specialized area of organizing and teaching courses in the construction trades.

The study of residential construction materials is a part of the content in one architectural drafting course, but lacking in depth and breadth to provide the knowledge a construction trades teacher must acquire. This new course is necessary to provide teaching and developmental skills for the prospective construction trades teacher and an in-depth understanding of materials used by seven construction trades.

B. Similarity to existing courses:

There are no courses similar to this one offered to undergraduates in the 1977-78 general catalog.

C. Required or elective:

Technology education majors who elect to pursue a concentration option in construction trades are required to complete this course.

V. Community-Colleges:

It is highly unlikely that a similar course is currently being offered on any community college campus in the nation. However, if the content of a similar course can be judged as equal or near equal, transfer credit may be accepted.

VI. Date Approved by Proposing Unit:

The School of Technology faculty approved the concentration option in construction trades on October 13, 1977.

CHAPTER III

SUMMARY AND RECOMMENDATIONS

Summary

Two committees were formed to assist in the development of this pre-service construction trades curriculum. Each committee member was contacted by personal interview by the project director. All expressed a willingness to assist in their area of expertise.

Residential construction trades competencies are in performance terms and are included in the Construction Trades Curriculum. An advisory committee member from each trade has examined the skill and knowledge competencies for validation purposes.

A concentrated effort to work with trade unions and joint apprenticeship committees in Illinois toward improved cooperative working relationships was accomplished. Apprenticeship leaders who are serving as committee members have evidenced a positive attitude toward the construction trades curriculum project.

The necessary ground work has been completed for implementation of the construction option into the curriculum structure at Eastern Illinois University. An implementation proposal is now in the hands of the Board of Governors of State Colleges

and Universities. The implementation intent, as stated in proposal PCB-A7-032, was to be ready for implementation by June 30, 1977. A second contract, RDE-B8-533, was requested and approved with a June 30, 1978 completion date. Actual implementation, at this writing, depends upon action by the Board of Governors of State Colleges and Universities. Approval is expected but without financial support.

Recommendations

This curriculum effort should be set in motion as a model. Evaluation of all facets of the working model should be subject to careful analysis. Students completing the proposed program of studies should be subjected to written competency testing before employment and after employment on a yearly basis for the purpose of ascertaining the retention level of skill and knowledge competencies. The construction trades teacher education program could then be evaluated more in terms of "performance" and less in terms of the possession of a degree. Tests have been developed in the majority of the construction trades and are available.

APPENDIX A

LETTERS SENT TO BUILDING ASSOCIATIONS, CONSTRUCTION CONTRACTOR AND LABOR ORGANIZATIONS

STEERING COMMITTEE LETTER OF SOLICITATION

Dear

There is a national shortage of teachers qualified to instruct in construction trades programs at the secondary public school and community college level. To help alleviate this shortage, the School of Industrial Arts and Technology at Eastern Illinois University has undertaken a curriculum project to develop a program for training construction trades teachers.

This unique program is entitled "Competency-Based Preservice Construction Trades Curriculum." The Professional and Curriculum Development Unit Adult, Vocational and Technical Education of the Illinois Office of Education has funded this project for a period of eleven months, August 1, 1976, through June 30, 1977.

To our knowledge, Eastern Illinois University will be the only university in the country to develop a curriculum solely for the preparation of construction trades teachers. Illinois Office of Education personnel and involved faculty members at Eastern Illinois University School of Industrial Arts and Technology feel that our basic direction should be determined from various national construction associations and labor organizations.

To provide opportunities for the numerous construction affiliated associations and labor organizations to help guide our efforts, we are extending invitations to approximately sixteen organizations directly related to the residential construction industry.

Since the major thrust of this curriculum project involves residential and light commercial construction it was recommended that your organization be provided an opportunity to recommend a person who whould serve as a steering committee member.

Please consider this an opportunity to render a contribution to a first in higher education. I look forward to your response.

Cordially,

Dr. Howard F. Nelms, Project Director
Construction Trades Curriculum

HFN:jef

Enclosure

APPENDIX B

LETTERS TO ADVISORY AND STEERING COMMITTEE MEMBERS

LETTER TO STEERING COMMITTEE MEMBERS

TO: Competency-Based Preservice Construction Trades Curriculum Steering Committee Members

FROM: Dr. Howard F. Nelms, Project Director

RE: INTRODUCTION TO THE CONSTRUCTION TRADES CURRICULUM

A more detailed description of the Competency-Based Preservice Construction Trades Curriculum has been provided for your inspection. My intent is to acquaint you with the curriculum project by providing a brief history of our effort, the rationale in support of the curriculum, and an abstract of a recent research study indicating the educational needs of Illinois building construction teachers.

Input was solicited and tabulated relative to suggestions for a pre-service construction trades curriculum from practicing Illinois building construction teachers. The accompanying abstract puts the study results in perspective without extensive reading.

I plan to visit with you personally before the Christmas holidays. To facilitate the visit, I will call for an appointment at your convenience.

Your concern and interest in this educational effort is appreciated. I look forward to a visit with you soon.

HFN:jef

LETTER TO ADVISORY AND STEERING COMMITTEE MEMBERS.

Dear

It has been a rather lengthy period of time since you last received information concerning the progress of the Preservice Construction Trades Curriculum Program.

I am happy to report that the curriculum guide for the Illinois Division of Adult, Vocational and Technical Education will be completed by the June 30, 1978 completion date.

Activities conducted during the second year of this project were centered about the writing of proposals with goals toward implementation of the construction trades teacher education program on the Eastern Illinois University campus within the School of Technology.

At this point in time we have been partially successful. The proposed curriculum structure is designed to facilitate students who choose to learn the knowledge and skills necessary to meet vocational building trades certification requirements. The program has been approved by the necessary committees at Eastern and presently awaits approval by the Board of Governors at the next scheduled meeting.

Approval of the concentration option in construction trades is expected, however financial appropriations to begin this program are not expected. To insure a healthy beginning the program must be funded for purchase of tools, materials, and one additional faculty member.

Alternative methods of finance have been discussed, possibly from sources outside the university, but the key needed to unlock this approaching stalemate is approval for the employment of one additional faculty member in our School of Technology here at Eastern and finances to support implementation procedures.

I wish to express my appreciation for your input and assistance with this project. My plans include another visit with you in the near future. If time is not available, you will receive a copy of the Competency-Based Preservice Construction Trades Curriculum Guide and a written final report of the project.

Cordially,

Dr. Howard F. Nelms
Project Director
Construction Trades Curriculum

HFN:jd

APPENDIX C

LETTER ACCOMPANYING QUESTIONNAIRE

LETTER ACCOMPANYING QUESTIONNAIRE

Dear

The nation's secondary schools are in need of qualified residential building construction teachers.

To initiate a curriculum for this type of teacher we need your help in ascertaining the skills and knowledge you feel are minimal for a teacher to perform effectively. Obviously, our time with students interested in preparing for residential building construction teaching does not permit training to the level of the journeyman craftsman. Your knowledge, training, and experience in your trade will reveal the very basic skills and knowledge a beginning teacher must acquire to succeed.

Will you provide 10 to 15 minutes of your time, complete and return the enclosed form. Please remember to respond to the statements if you feel the particular skill or knowledge is an "absolute must" in your opinion. A stamped, self-addressed envelope is enclosed for your convenience.

Sincerely,

Dr. Howard F. Nelms
Project Director
Construction Trades Curriculum

HFN:jef

Enclosures: Questionnaire
Self-addressed envelope